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54 Shoe with a seat for the big toe at the tip end.

57 In order to permit the foot enclosed by a shoe to repeat the natural movements of the big toe during the deambulation with bare foot, a shoe is provided comprising in the fore part a seat 6 for the big toe consisting of a sole portion 3 and of a corresponding upper portion which are fully separated from the remaining fore part 9 of the shoe.

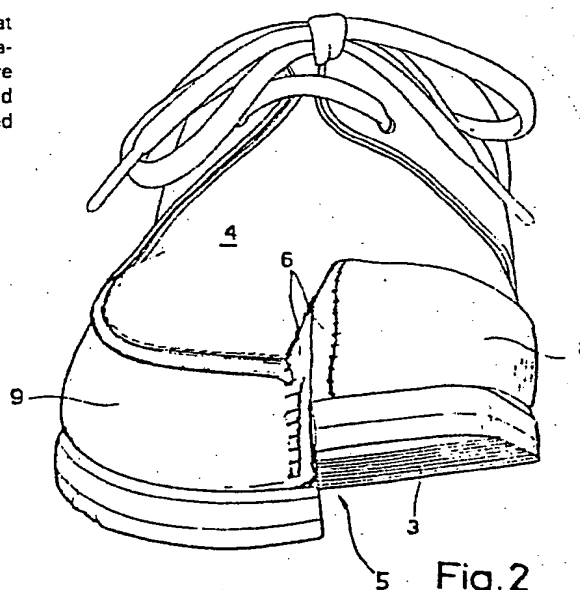


Fig. 2

The present invention relates to a shoe of closed type, particularly ~~useful for~~ **0152033** use, having on the tip end a separate seat for the big toe.

The orthopaedically correct position of the foot, and particularly of the big toe, during the deambulation is, as it is well known, that corresponding to the "deambulation with bare foot", i.e. the position which the foot does naturally take onto the ground when in a free condition or without shoe.

In the conditions of deambulation with bare foot, the importance is observed of the role of the big toe in the deambulation.

In fact it fulfills a function of relevant engagement with the ground, thus highly contributing to the power and to the spring of the foot.

It is by the way known that if the big toe is even slightly deviated with respect to its natural position with bare foot, the athletic performance during a foot-race is affected.

However, most of the closed shoes, mainly owing to aesthetic and fashion reasons, have a fore part point-like shaped with angled profile. Consequently, the big toe is deviated from its correct rectilinear position, thus causing a permanent deformation of the foot to take place, it being called "Allux valgus", involving deambulation pain, etc.

The traditional shoes, moreover, do not permit the big toe to be opened wide apart and be moved in vertical direction with respect to the remaining fingers of the foot, as it occurs on the contrary in the orthopaedically correct deambulation, with an attendant diminution of the "yield" of the deambulation and with a certain numbness of the foot muscles.

Consequently the need exists of providing a shoe of closed type, adapted to permit the big toe to perform the natural movements of the deambulation with bare foot.

From French Patent No. 2276792 a shoe is proposed in which each finger is housed in a shaped part of the shoe tip, whereby the shoe is strictly resembling to a glove, but for the foot.

However, apart from aesthetic considerations, problems exist as regards the manufacturing of such a shoe which is not feasible on an industrial basis.

In turn USP 3013564 relates to a sock structure or foot garment in which the big toe is separated from the remaining fingers, this garment being however considered for use in combination with a standard structure shoe.

The purpose of the present invention is that of providing a shoe of closed type, adapted to overcome the above mentioned problems and to fulfill the previously stated need which to date did not find a solution in the conventional shoes of this type.

These and other purposes are achieved by means of the shoe of closed type according to the invention, which is essentially characterized in that means are provided adapted to permit the free movement of the big toe, within said shoe, with respect to the remaining fingers of the foot, to take place in the natural position thereof of deambulation with bare foot.

According to further features of the invention, said means consist of a seat for the big toe provided at the tip end of the shoe in a separated position with respect to the remaining, part of shoe housing the other fingers of the foot.

The separation area consists, according to the invention, of a double wall of upper leather and of a corresponding longitudinal slit in the sole, extending along the big toe, whereby it is separated from the remaining fingers of the foot and made independent as to its movements with respect to the remaining portion of the shoe.

The advantageous effects of the present shoe are multiple. In fact it prevents and corrects the forming of the Allux valgus, thus having also the function of a correcting orthopaedic shoe.

From the point of view of the foot hygiene, said shoe permits a greater muscle development of the whole foot and of the leg, thanks to the possibility of motion of the big toe promoting the engagement of the foot with the ground. From the point of view of sport, the shoe of the invention, permits greater spring and power to be achieved.

The whole is naturally beneficial for a better blood circulation at the foot level, with an increased oxygenation of the tissues and with a contribution to the solution of the problems causing the varicose veins to be formed.

The shoe of the present invention shall be now described with reference to the embodiment shown in the enclosed drawings, having exemplifying but non limiting purpose.

In the drawings:

- fig. 1 is a perspective view of the shoe of the present invention;
- figs. 2 and 3 show the shoe of fig. 1 in front view with two different position of the

big toe with respect to the other fingers of the foot;

- fig. 4 is a plan view particularly of the front part of the shoe of fig. 1; and  
figs. 5 and 6 are cross-section views, respectively according to the lines V-V and VI-VI  
of the shoe of fig. 4.

With reference to the said figures, the shoe according to the invention is indicated on  
the whole by reference 1 in fig. 1 and essentially comprises an upper 2, of leather or  
other material, joined to the sole of leather or rubber 3.

The fore portion or tip 4 of the shoe 1 (figs. 4 to 6) comprises a slit or longitudinal cut  
5 in the sole corresponding to the internal profile of the big toe in the shoe. The  
extension of this slit or depth of the cut 5 is nearly equal to the length of the big toe.

At the slit 5 of the sole 3, two flaps 6 are provided, facing towards each other, which  
are joined to the sole 3 at the height of the end portions of the slit 5 (fig. 5). At the  
tip 4 of the shoe 1 a double wall 7 is thus formed (fig. 6) consisting of the opposed  
flaps 6, of the upper 2, which wall is inserted between the big toe and the second  
finger of the foot upon wearing the shoe 1. The tip 4 is thus divided by the double  
wall 7 into two portions or compartments, separated from each other and capable of  
independent movements from each other; the portion 8 forming the seat of the tip of  
the shoe for housing the big toe and a portion 9 housing the remaining fingers of the  
foot (figs. 4 and 6).

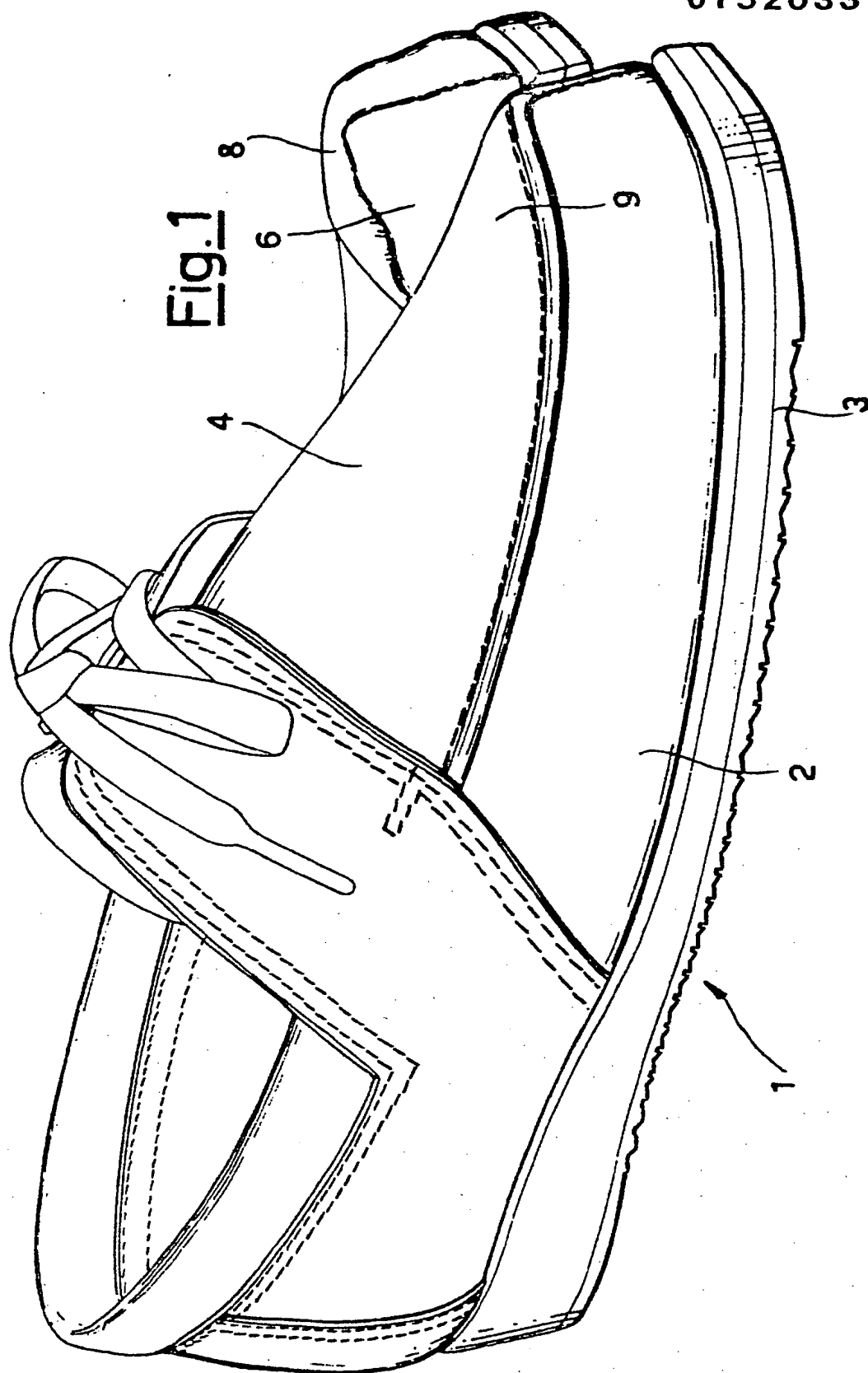
The possibility of vertical movements of the big toe with respect to the other fingers  
of the foot, or better stated the liberty of relative movements between the separate  
portions 8 and 9 of the tip 4 of the shoe of the invention are illustrated in the figs. 2  
and 3.

Besides these vertical movements, also the spreading apart of the big toe with  
respect to the remaining fingers of the foot is made possible.

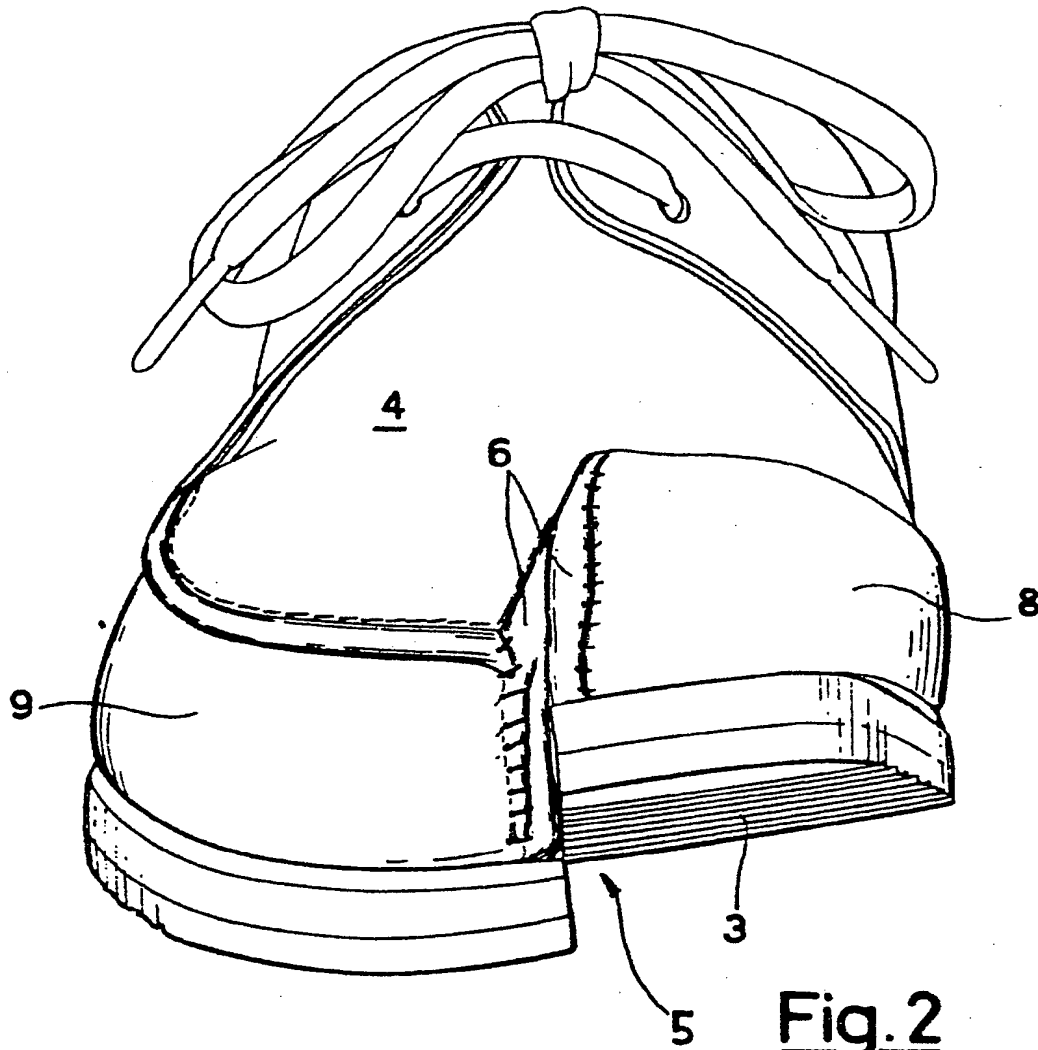
Thus according to the invention, a closed shoe is provided, permitting the foot,  
particularly the big toe, to repeat the movements of the deambulation with bare foot.  
Solutions equivalent to the above described embodiment are possible, without  
however falling out of the scope of the present invention.

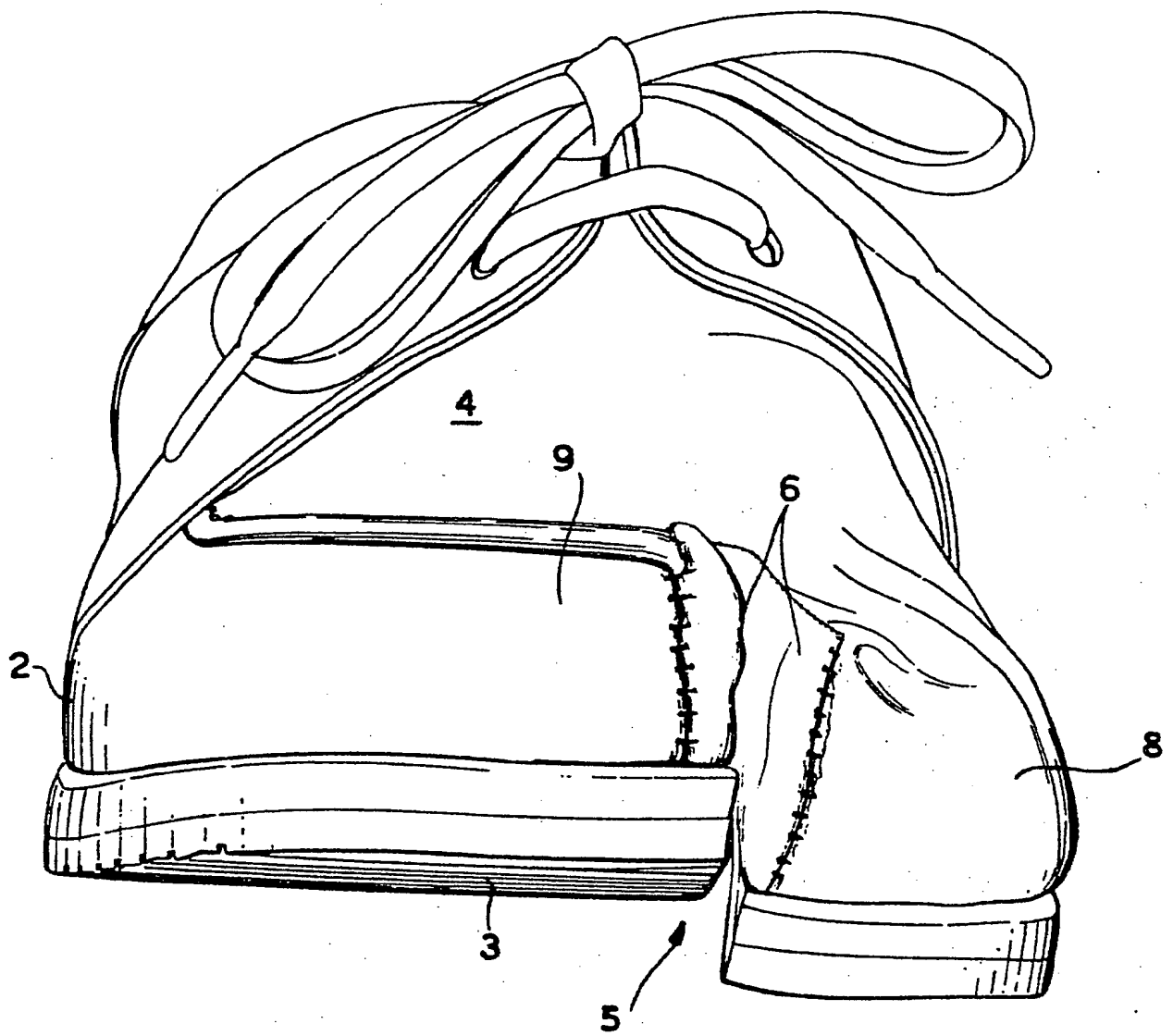
## CLAIMS

1. Shoe of closed type, comprising a sole (3) and an upper (2) joined to said sole, characterized by comprising means for permitting the free movement, within the shoe, of the big toe with respect to the remaining fingers of the foot in its natural position of deambulation with bare foot, said means comprising a seat 8 for the big toe provided in the tip end or fore part (4) of said shoe, said seat being separated and capable of free movement with respect to the corresponding portion (9) of the shoe housing all the remaining fingers of the foot.
2. Shoe according to claim 1, characterized in that said seat (8) for the big toe in turn consists of a sole portion and of a corresponding portion (6) of upper, joined to said sole portion, both separated from the remaining part (9) of the shoe tip, the size of said seat (8) being at least equal to that of the same big toe.
3. Shoe according to claim 2, characterized in that said seat (8) comprises, at the shoe tip, a double dividing wall (7) of upper and a slot or longitudinal cut (5) in the sole (3) having a length corresponding to that of said double dividing wall, the latter defining on one side the seat (8) for housing the big toe and on the other side the remaining portion (9) of the shoe tip.



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**Fig. 2**

**Fig. 3**



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Fig. 5

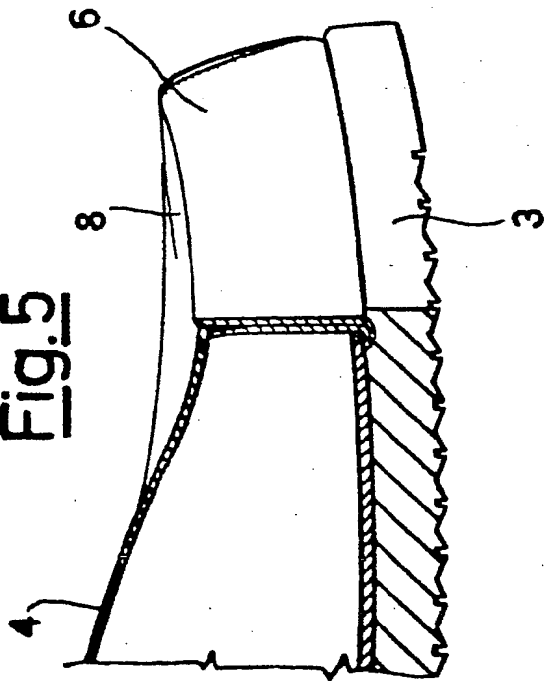


Fig. 6

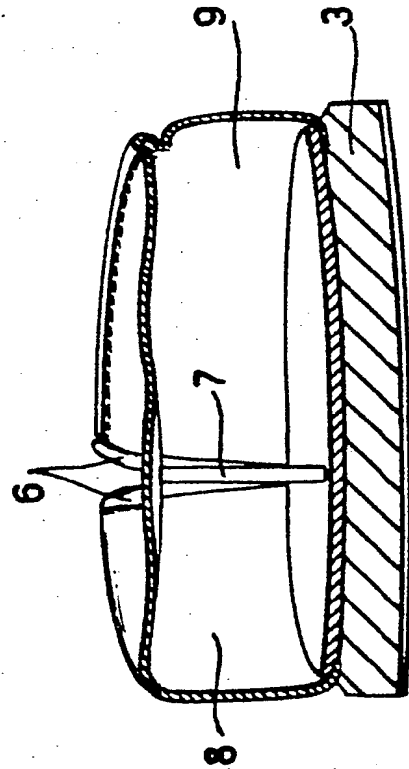
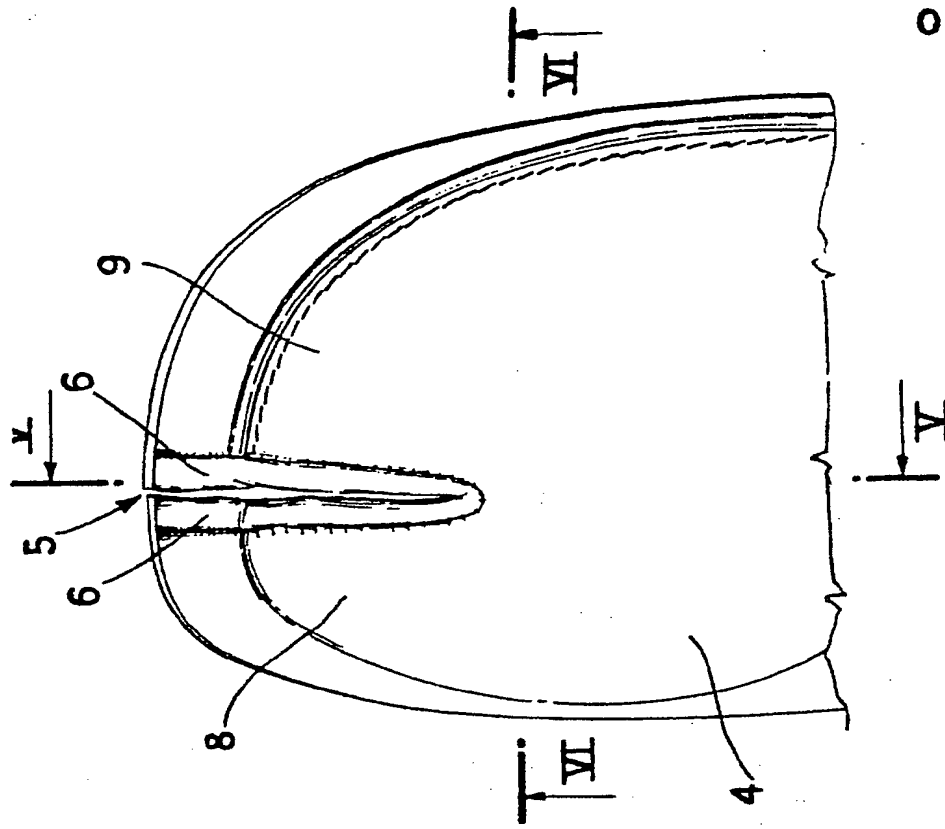


Fig. 4





European Patent  
Office

# EUROPEAN SEARCH REPORT

0152033

Application number

EP 85 10 1087

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)
D, Y	FR-A-2 276 792 (L.S. ANFRUNS) * Claims 1,2; figures 1-6 *	1-4	A 43 B 7/26
D, Y	--- US-A-3 013 564 (H. LEVEY) * Column 1, lines 49-51; figures 1-4 *	1-4	
A	--- US-A-3 128 763 (A.G. LANGENFELD) * Claim 1; figure 1 *	1-4	
			TECHNICAL FIELDS SEARCHED (Int. Cl. 4)
			A 43 B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 27-03-1985	Examiner MALIC K.
<b>CATEGORY OF CITED DOCUMENTS</b>			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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